



We have all noticed how a weed appears in a field or lawn,—perhaps only one or two plants the first year,—and in a season or two has spread everywhere.

The dandelion is an Old World flower, not native in America, save far to the North and on some of the highest of our western mountains. But somehow it was brought here, perhaps from England in old colonial times. Now we see its golden heads and feathery balls at every grassy roadside, the "clocks" the boys and girls blow to tell the hour. A few years ago farmers in the Northwest found a new weed, a vile prickly weed, in their wheat-fields. In a very short time this weed, the Russian thistle, has spread over wide acres of the best farm-land in that part of the country, and has done great injury to the crops.

How do these plants spread so fast and so far? They are not carried about and planted. No one would be so foolish as to sow Russian thistles. The mother-plant must have ways of her own for sending her offspring abroad into the world. Plants propagate themselves in two ways, from seed or from buds. Sometimes these buds are borne on slender runners. A strawberry plant, after it has blossomed, begins to send out such runners, with buds, unfolding tufts of leaves, along them. These tufts

are at first connected with the parent plant, but later the runners between break away, and each tuft becomes a new plant. Many grasses, like Bermuda grass and the troublesome quick- or couch-grass, have creeping stems, each joint sending out a bunch of roots below and a bud on the upper side. If you try to hoe up such grasses, you only make matters worse, for each joint when cut off is ready to form an independent plant. Such grasses spread very fast, and soon take possession of the land they get into.

Many plants, like lilies and crocuses, have thick bulbs or corms underground, on which grow the buds that are to make new plants. Every year new bulbs grow out of the old one. The little round, dark bulblets between the leaves and stems of our showy garden friend the tiger-lily are buds that fall to the ground and make new plants.

But most plants grow from seed, and we are going to see just now how the seed is scattered.

It is good for plants to keep as much apart as possible. If the seed fell straight to the ground, and the young plants all grew up together around the parent one, they would starve each other out. For plants are like people, and when crowded too closely together, fall to fighting among themselves. Their struggles are very bitter ones, though we do not see or hear them. The plants that are strongest in these silent battles end by getting the light and air and water and food they need from the soil, while the poor weaklings are left to starve

and die. To prevent too much of this wasteful crowding and struggling, old Dame Nature has invented many a clever little scheme.

When trees or smaller plants grow on river banks, their fruits often fall into the water, stream by the current, sometimes finding landing-places on the banks, and so growing up into new plants. Who has not seen sycamore-balls and buckeyes traveling along in this easy fashion? These

are the fruits of the trees they grow on.

Fruit is the part of the plant that incloses the seed, with the seed itself. So the dry pods that hold the black morning-glory seeds are as truly fruits as are apples or strawberries,

THE THISTLE'S ARGOSY.

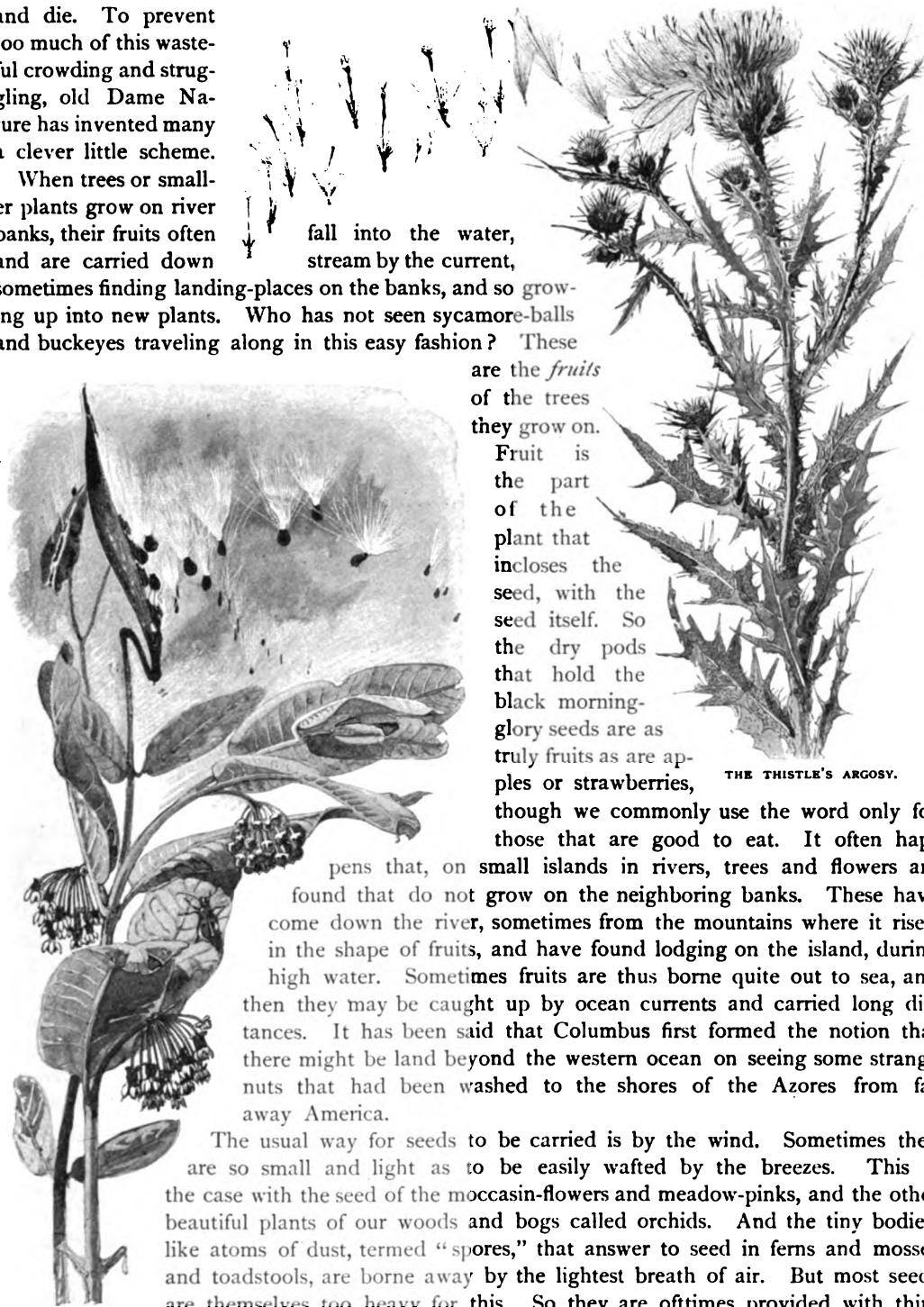
though we commonly use the word only for those that are good to eat. It often happens that, on small islands in rivers, trees and flowers are

found that do not grow on the neighboring banks. These have come down the river, sometimes from the mountains where it rises, in the shape of fruits, and have found lodging on the island, during high water. Sometimes fruits are thus borne quite out to sea, and then they may be caught up by ocean currents and carried long distances. It has been said that Columbus first formed the notion that there might be land beyond the western ocean on seeing some strange nuts that had been washed to the shores of the Azores from far away America.

The usual way for seeds to be carried is by the wind. Sometimes they are so small and light as to be easily wasted by the breezes. This is the case with the seed of the moccasin-flowers and meadow-pinks, and the other beautiful plants of our woods and bogs called orchids. And the tiny bodies, like atoms of dust, termed "spores," that answer to seed in ferns and mosses and toadstools, are borne away by the lightest breath of air. But most seeds are themselves too heavy for this. So they are oftentimes provided with thin, broad wings that carry them before the wind as a sail carries a boat. The pairs of "keys" that hang in clusters from the maple-trees in spring are such

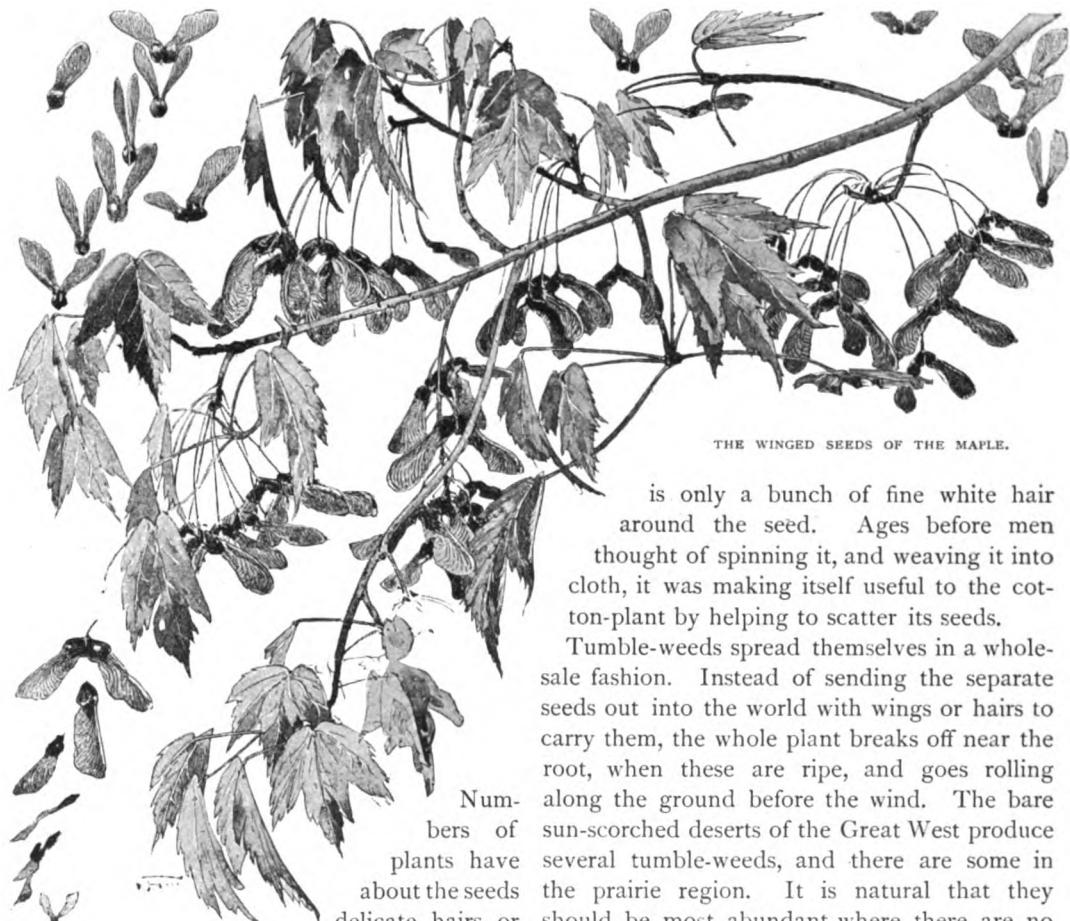
OFF ON A FAVORING BREEZE. THE SEEDS OF THE MILKWEED.

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winged fruits. When ripe they float slowly to the ground, or if a high wind is blowing, they are carried farther from the tree. The ash has thick bunches of winged fruits much like these, but single. The elm has a thin, papery border all around its small seeds, which makes them quite conspicuous as they hang on the branchlets before the leaves have come out.

small, brown seed. The seeds that ripen in heads on the clematis, after the handsome purple flower-leaves have fallen, have long feathered tails, like slender bird-plumes, that do the same work that is given to the silk of milkweed. The "cotton" around the seeds of the willows at the riverside and of the poplars along city streets serves the same useful purpose. Cotton itself



THE WINGED SEEDS OF THE MAPLE.

Numbers of plants have about the seeds delicate hairs or

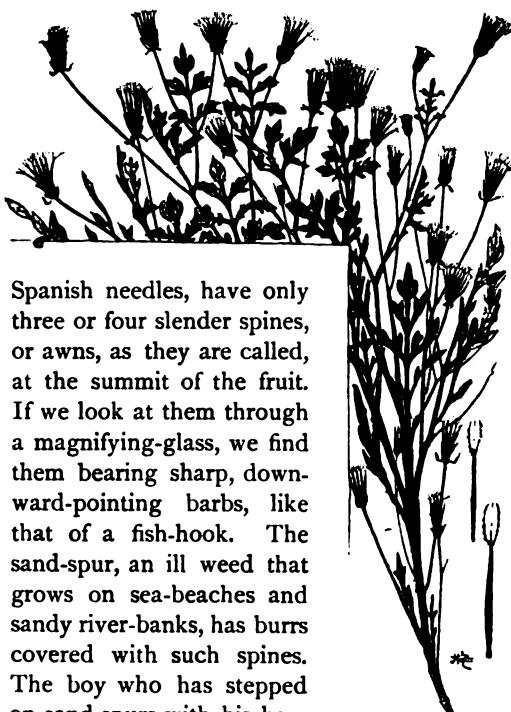
bristles that take the place of wings. A dandelion "clock," or a head of thistle-down, is a bunch of seeds, each with a circle of fine bristles on the summit. When the seeds are ripe, along comes a breeze, and puff! away go the seeds, hanging from their tufts of bristles, as the basket hangs from a balloon. The bunches of long silky hairs that come from a bursting pod of milkweed, and fill the air around, have each their precious cargo in the shape of a

is only a bunch of fine white hair around the seed. Ages before men thought of spinning it, and weaving it into cloth, it was making itself useful to the cotton-plant by helping to scatter its seeds.

Tumble-weeds spread themselves in a wholesale fashion. Instead of sending the separate seeds out into the world with wings or hairs to carry them, the whole plant breaks off near the root, when these are ripe, and goes rolling along the ground before the wind. The bare sun-scorched deserts of the Great West produce several tumble-weeds, and there are some in the prairie region. It is natural that they should be most abundant where there are no hills nor trees to stop them in their course. But we have one tumble-weed in the East — the old-witch grass, so-called, maybe, because it rides the wind like an old beldame. In September this grass spreads its head, or panicle, with hair-like, purple branches, in every sandy field. When the seeds are ripe the plants are blown across the field, often piling up in masses along fences and hedgerows. As might be expected, the hair-grass, which has so effective a

way of spreading itself, is found throughout the United States, from ocean to ocean.

After a stroll afield, in the fall, one is apt to wonder, as he works away at the burrs that cover his clothes, what use they can possibly be. Burrs are a great nuisance to men and animals; but the plants they grow on find them very serviceable, for they are simply fruits covered with spines or prickles; and this is only another way plants have to distribute their seeds. That it is a scheme that works well any one can see who has a hunting-dog, and keeps it in his yard. In the spring fine crops of Spanish needles and clot-burrs come up as if by magic, where there were none before. They have grown from the burrs the dog brought home in his coat the autumn before. Around woolen mills in New England plants from the West spring up in a mysterious way, and nearly always these have burr-fruits. They have grown from the burrs taken from the fleece of sheep, in cleaning, and thrown out as waste. Some troublesome weeds have been introduced in this manner. On the prairies there are many plants with this kind of fruit. In former days,



SPANISH NEEDLES.

Spanish needles, have only three or four slender spines, or awns, as they are called, at the summit of the fruit. If we look at them through a magnifying-glass, we find them bearing sharp, downward-pointing barbs, like that of a fish-hook. The sand-spur, an ill weed that grows on sea-beaches and sandy river-banks, has burrs covered with such spines. The boy who has stepped on sand-spurs with his bare feet knows this to his sorrow. The tiny barbs go in easily, but every attempt to draw them out makes them tear into the flesh.

Often the spines or bristles are hooked instead of being barbed. The clot-burr, or cockle-burr that grows abundantly in waste ground, and the agrimony of our woods, are examples. Burdock has such hooked prickles on its fruits, and they stick so fast together, that children make of them neat little baskets, handles and all. The tick-trefoil has jointed pods, covered thickly with small hooked hairs that can hardly be seen without a magnifying-glass. These are the small, flat, brown burrs that cover the clothing after a walk through the woods in September. They are most annoying burrs, worse than clot-burrs, they are so small and stick so fast.

The most curious of all the ways of spreading the seeds is that adopted by the jewel-weed. This is a handsome plant, often seen in shady places along brooks. It owes its name to the dew that in early morning hangs in glistening drops, like small round diamonds, along the scalloped edges of the leaves. Late in summer,—



THE BURDOCK.

when great herds of buffalo roamed the plains, their hair caught up these burrs, which thus stole long rides, like the tramps they are. Even now, in old buffalo-wallows plants are found that do not grow elsewhere in the country round.

Some burrs, like

in August and September,—the jewel-weed is covered with pretty flowers, something like snapdragon blossoms, orange-red spotted with brown. Later on, when the seeds are ripe, the lightest touch will make the pods that hold them burst open suddenly, and scatter them far and wide, like shot from a tiny cannon. For this reason the European jewel-weed is known as *Noli-me-tangere*, which is Latin for "Touch me not." The garden balsam, or lady's-slipper, a relative of the jewel-weed, has the same sort of elastically-opening pods.

Another American plant that shoots out its seed in the same fashion is the witch-hazel, a shrub sometimes planted on lawns, and growing wild along brooks and on hillsides. The witch-hazel blossoms in October or November, when most other plants are dead. Often its own leaves have fallen when it begins to unfold its strap-shaped, crinkled yellow petals. Its shining black seeds do not ripen till the next

midsummer. Then they are discharged violently from the pods, and are sometimes thrown ten or twelve feet. The witch-hazel is a sturdy, independent fellow, and he does not wait for wind or water, or for chance wander-

ing animals to do his work for him.

But the most remarkable instance of this method of scattering the seeds is afforded by *Hura crepitans*, a hand-

some tree, native of the forests of South America. The curious fruit of this tree is a somewhat flattened, deeply furrowed or fluted body, made up of a circle of many cells, each containing one seed. When the seeds are ripe the

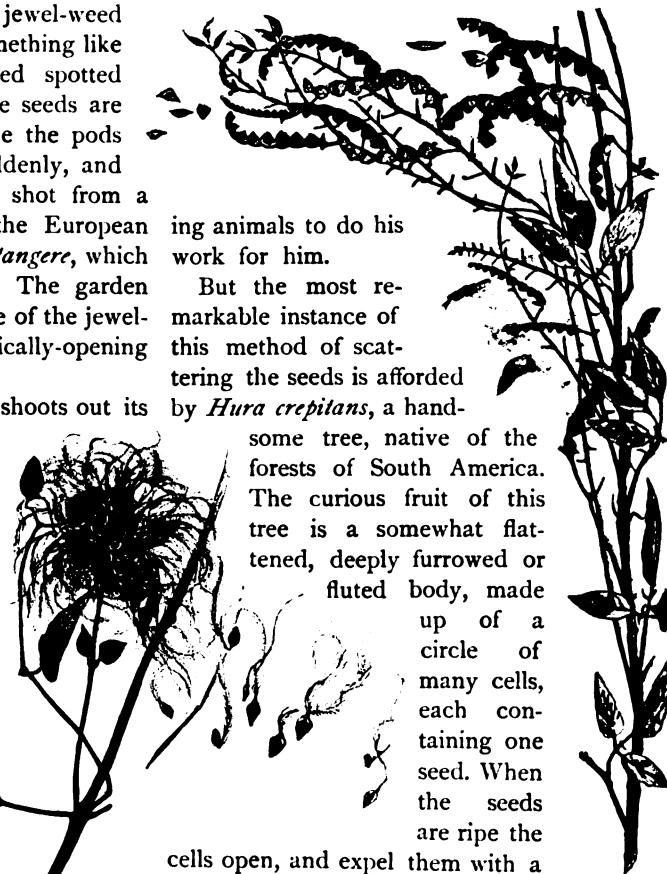
cells open, and expel them with a loud report, like the crack of a pistol. Hence the fruit is sometimes called the "monkeys' dinner-bell."

Stories have been told of *Hura* fruits being placed in desks and subsequently opening and discharging their seeds with such violence as to break ink-wells, and even to crack the wood of the desk.

Many other means employed by plants to disperse themselves could be described were there space for them. Those of us who live in the country, or visit it in summer, can discover some of these for ourselves. They are of never-failing interest, for they show how ready plants are to seek out new homes, and fit themselves for more important places in the world. Those that can do this are always spreading and waxing strong among their fellows, while the weaker ones gradually become rarer, and finally, if completely overcome, may disappear from certain localities.



THE CLEMATIS. SEEDS WITH PLUMES.



THE TICK TREFOIL